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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,569	01/02/2002	Philip Atkin	GJEL:0003	5846

7590 09/16/2008
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EXAMINER

AGGARWAL, YOGESH K

ART UNIT	PAPER NUMBER
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2622

MAIL DATE	DELIVERY MODE
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09/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/038,569	Applicant(s) ATKIN, PHILIP	
	Examiner YOGESH K. AGGARWAL	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Response to Arguments

1. Applicant's arguments filed 05/23/2008 have been fully considered but they are not persuasive.

Examiner's response:

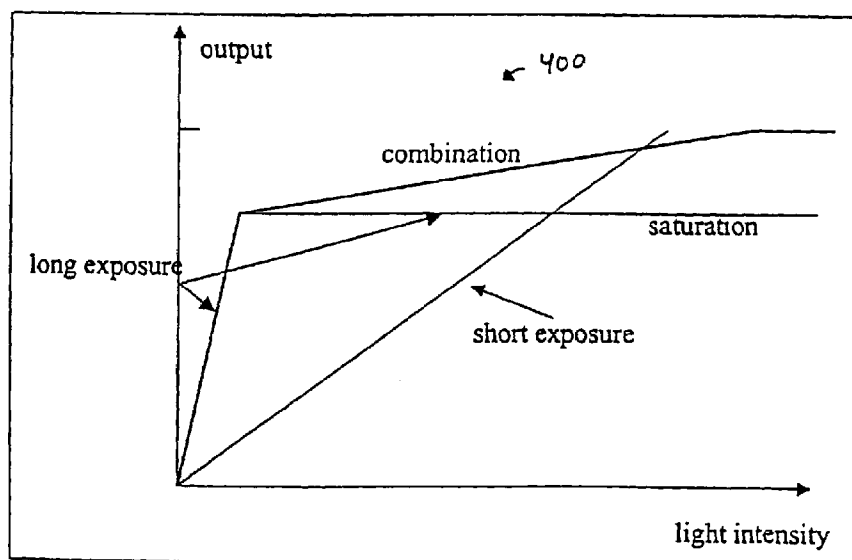
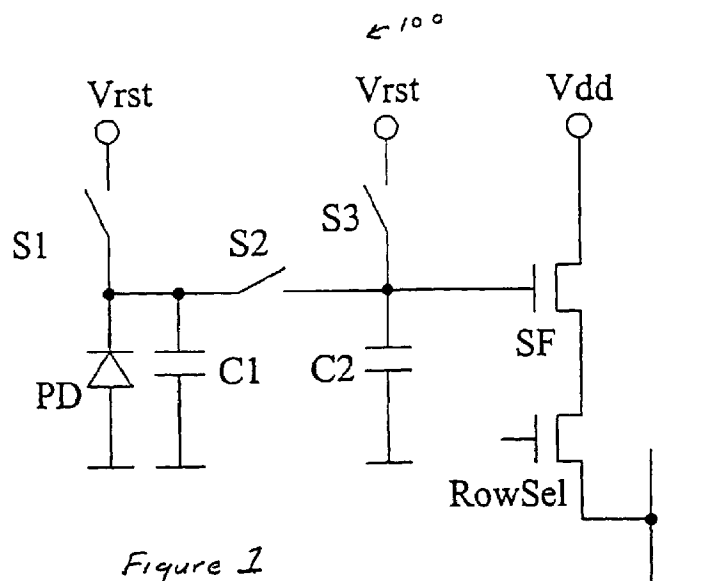
2. Applicant argues with regards to claim 1 that Krymski do not teach obtaining a substantial linear representation of the brightness of an image since the diagram proves that Krymski's system does not provide a linear response. It consists of two straight line segments whereas the present invention would produce a single invention. The Examiner respectfully disagrees. First, Krymski clearly states that

“In wide dynamic range operation, the idea is to write the signal into the memory twice, first after short integration and then after long integration. The pixel 100 in FIG. 1 is based on voltage sharing between the photodetector PD and the analog memory C2. Thus, after two operations of sampling, the resulted voltage in the memory will be a linear superposition of the two signals representing bright and dark image”.

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As shown in figure 4 above the combination is a straight line representation. Therefore the “output is substantial linear representation of the brightness of an image” exactly as claimed. Krymski reference exactly as the claim recites and obtains a substantial linear representation of the brightness of an image after the images are combined.

The claim never recites that the “piecewise linear” is to be excluded. As long as any part of the output is linear with respect to the brightness, it reads on the claim, since it only recites “**substantial** linear representation of the brightness of an image”. The claim does not even recite “linear representation of the image”. It recites substantial linear representation which does not exclude the teachings of Krymski. Therefore it is suggested that the applicant claims the invention to cover the fact that the image is linear for the whole range of brightness values and not just being “substantial linear” in order to overcome Krymski's reference. Therefore the rejection would be maintained.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mann (US Patent # 5,828,793) in view of Krymski (US Patent # 7,209,166).

[Claim 1]

Mann discloses a method of creating an image with a still video camera (col. 11 lines 43-46, figure 8, element 202). Mann further teaches that the image is transferred to a computer to be

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stored on a main memory 210 represented as $212_1, 212_2, 213_3$ etc. (col. 11 lines 46-54). Mann also teaches that the composite images formed from a series of input images wherein every pixel of the composite image is drawn from the corresponding pixel in each of the input source images according to a weighted average. The weighting is based on a certainty function associated with each source image pixel corresponding to an output pixel in the final composite image. The value of the relevant pixel parameter for a given final-image pixel (weighted average of n samples) is given by

$$\sum_n c_n P_n / \sum_n c_n$$

where c_n is the certainty function associated with the corresponding pixel of each source image n (col. 6 line 51-col. 7 line 8). It is noted that P_n (pixel parameter) is dependent upon exposure time, brightness or luminance and the gain of the system. Mann teaches that the resulting pixel image represented by the expression above is saved in a target buffer 250 whose contents are shown on screen display 234 (col. 12 lines 32-49). The features such as gamma correction (other image data) are also stored in the target image data (col. 13 lines 4-8).

Mann fails to teach explicitly obtaining a substantially linear representation of the image by combining two images. However Krymski teaches to write the image signal into the memory twice, first after short integration and then after long integration. Thus, after two operations of sampling, the resulted voltage in the memory will be a linear superposition of the two signals representing bright and dark image (Col. 3 lines 2-9, figures 1 and 3). Fig. 4 clearly teaches that combined signal is a substantial linear representation of the brightness (light intensity) of the image by combining two images. It is noted that that in order to obtain a wide dynamic range

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image the two long and short exposure images are combined so that the final image provides increased highlight detail despite the limited response of the system that produced the component images

Therefore taking the combined teachings of Mann and Krymski, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have obtained a substantially linear representation of the image by summing two images in order to obtain a wide dynamic range image so that the final image provides increased highlight detail despite the limited response of the system that produced the component images.

[Claim 3/1]

Mann teaches that the different images are color so that the offset will be color dependent (col. 13 lines 21-30).

Allowable Subject Matter

5. Claims 2 and 3/2 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art fails to teach or suggest a linear relationship is established between images recorded with different exposure times by the use of a perpendicular regression technique whereby each image is transformed to match the scale and offset of the first in the series and whereby the weighted average is calculated.

6. Claim 3/2 is dependent upon claim 2.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOGESH K. AGGARWAL whose telephone number is (571)272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yogesh K Aggarwal/
Primary Examiner, Art Unit 2622